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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/049,845      | 03/26/2002  | Alan H. Greenaway    | 124-925             | 2457             |

7590 12/23/2002

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EXAMINER

JUBA JR, JOHN

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 12/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/049,845

Applicant(s)

GREENAWAY ET AL.

Examiner

John Juba

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2-1/2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Priority*

Applicants' claim for priority under 35 U.S.C. 119(a)-(d) is acknowledged. Form PCT/DO/EO/903 (Acceptance Notice) indicates that the priority document has been received at the International Bureau. It is noted however, that a copy of the certified priority document is not in the Office filewrapper.

### *Claim Rejections - 35 USC § 112*

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 is ambiguous as to the constitution of the diffraction grating. It is clear that, at the same time, the grating will be either transmissive or reflective, *and* one an amplitude only, phase only, or amplitude and phase grating (six alternatives). It is *not* clear however, whether the grating must be one of the aforementioned species, *and* at the same time have lines that are not plane parallel, or whether the list of species presents twelve alternative forms.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The foregoing is a quotation of the appropriate paragraph of 35 U.S.C. § 102(e) in view of the AIPA and H.R. 2215 that forms the basis for the rejections under this section made in the attached Office action. See attachment.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by SONY (JP 08-043759). Referring *for example* to Figure 4 and the associated text in the machine-assisted translation, SONY disclose an optical system (1) associated with a first optical transfer function, a diffraction grating (13), ancillary optical modules (15-1) – (15-3), and detecting means (17)(19)(21) arranged and cooperating as recited.

Claims 1, 2, and 6 – 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Maeda, et al (U.S. Patent number 5,115,423). Referring *for example* to Figure 8 and the associated text (Col. 8), Maeda, et al disclose an optical system (26) associated with a first optical transfer function, a diffraction grating (41)(42), ancillary optical modules (48) and (22) and detecting means (44) and (46) arranged and cooperating as recited.

With regard to claim 2, "defocus" has been read broadly to mean optical power. The *nature* of the modules as imparting different amounts of focal power is evident by inspection of Figure 8.

With regard to claims 9 and 10, detection of states from arrays of two-state devices is illustrated in Figures 13 and 14.

Claims 1 – 5 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee (U.S. Patent 6,043,935). Referring *for example* to Figure 4 and the associated text, Lee discloses an optical system (450)(440) associated with a first optical transfer function, a diffraction grating (430), ancillary optical modules (416) and (426) and detecting means (414) and (424) arranged and cooperating as recited. It will be appreciated that while light is diffracted to detector (414) in the zero order, the light diffracted to detector (424) is a non-zero order.

With regard to claims 2 – 5, the ancillary modules are disclosed as compensating for a difference in plate thickness in object space. The examiner believes this to be a clear teaching of providing different defocus for aberration correction, and providing different degrees of (corrective) spherical aberration.

With regard to claim 7, the claim is believed to encompass every conceivable species of grating. Accordingly, Lee discloses such a grating.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takahashi (U.S. Patent number 5,838,651) discloses an optical head with a grating diffracting light into several orders at different image planes.


Michel, et al disclose diffraction gratings separating images of the source into three diffractive orders passed through ancillary optical modules to their respective detectors.

Leitz, et al disclose a grating diffracting light into several orders at different image planes and an ancillary optical module for each order.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Juba whose telephone number is (703) 308-4812. The examiner can normally be reached on Mon.-Fri. 9 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on Mon.- Thu., 9 - 5. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

John Juba  
  
Examiner, GAU 2872

December 16, 2002

### **Attachment**

#### **Recent Statutory Changes to 35 U.S.C. § 102(e)**

On November 2, 2002, President Bush signed the 21st Century Department of Justice Appropriations Authorization Act (H.R. 2215) (Pub. L. 107-273, 116 Stat. 1758 (2002)), which further amended 35 U.S.C. § 102(e), as revised by the American Inventors Protection Act of 1999 (AIPA) (Pub. L. 106-113, 113 Stat. 1501 (1999)). The revised provisions in 35 U.S.C. § 102(e) are completely retroactive and effective immediately for all applications being examined or patents being reexamined. Until all of the Office's automated systems are updated to reflect the revised statute, citation to the revised statute in Office actions is provided by this attachment. This attachment also substitutes for any citation of the text of 35 U.S.C. § 102(e), if made, in the attached Office action.

35 U.S.C. § 102(e), as revised by the AIPA and H.R. 2215, applies to all qualifying references, except when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. For such patents, the prior art date is determined under 35 U.S.C. § 102(e) as it existed prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. § 102(e)).

The following is a quotation of the appropriate paragraph of 35 U.S.C. § 102 prior to the amendment by the AIPA that forms the basis for the rejections under this section made in the attached Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

For more information on revised 35 U.S.C. § 102(e) visit the USPTO website at [www.uspto.gov](http://www.uspto.gov) or call the Office of Patent Legal Administration at (703) 305-1622.